

# Assessing Tradeoffs for Human Wellbeing and Agro-diversity of Smallholder Cash Crop Production

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Intense discussion exists about the contribution to development and the sustainability of cash crop farming. This study uses a web of sustainability to assess smallholder cash crop agriculture by analyzing tradeoffs between levels of production and food security, diet diversity, agro-diversity, nutrition and gender roles. Data was collected through three surveys administered in 2005 and 2008 to 250 households in the Millennium Village of Bonsaaso, Ghana. Information on these indicators as well as household composition, production, consumption, assets, and education are analyzed in comparison with quantity and area of cash crop production, specifically oil palm and cacao. Results indicate that cash crop farmers have statistically significantly more diverse diets, though this is primarily due to higher consumption of coffee, tea and alcohol. Functional diversity, a metric for agro-diversity, of production and consumption was also significantly higher in cash crop households, demonstrating ecological and social resilience. At the same time, farmers growing cash crops experienced significantly more food insecurity, indicating a potential absence of local savings and investment mechanisms, the implications of a sharing based culture, or local fee calendars. Children's arm circumference, weight for age, and body mass nutritional indices were significantly lower in cash crop and female led households. However, no further significant differences were found between male and female households for levels of cash crop production, diet diversity, or food security, indicating substantial gender equity. The tradeoffs in human well being for engaging in the cash crop industry could be amplified with the increasing international demand for cash crops such as oil palm. Continued research and intentional interventions can help minimize future negative implications while cultivating the contribution of cash crops to a framework of sustainable development.